

Notice of Allowability	Application No.	Applicant(s)	
	09/905,189	WEI ET AL.	
	Examiner	Art Unit	
	JOHN PAK	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/11/2005.
2. ☒ The allowed claim(s) is/are 1, 4-7, 16-20, 24-30, 33, 35-47 [renumbered as 1-31].
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).


* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
|---|---|


JOHN PAK
PRIMARY EXAMINER
GROUP 1/600

This Office action is in reply to applicant's amendments and remarks of 10/11/2005.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Skoog on 1/5/2006.

AMEND claim 18 as follows: at line 1, delete "phosphonate" and insert --- stabilizing agent --- .

REWRITE the following claims as shown below.

Claim 1. (Currently amended) A composition comprising:

about 1 wt-% to about 5 wt-% mono- or diester dicarboxylate,

about 1 wt-% to about 4 wt-% hydrogen peroxide, and

about 95 wt-% to about 98 wt-% water; and

free of added strong acid,

wherein the composition exhibits antimicrobial activity of greater than $2 \log_{10}$ reduction against *Bacillus cereus*, *Baccillus subtilis*, or *Chaetomium funicola* upon contacting the microbe with the composition for at least 5 seconds at a temperature between about 0 °C and about 100 °C.

Claim 16. (Currently amended) The composition of claim 1, wherein the water is present at a level of about 95 wt-% to about 97 wt-%.

Claim 24. (Currently amended) A method for making an antimicrobial composition comprising:
adding hydrogen peroxide to a vessel;
adding mono- or diester dicarboxylate to a vessel;
mixing the hydrogen peroxide and the mono- or diester dicarboxylate in the vessel;
avoiding any addition of strong acid;
retaining the hydrogen peroxide and the mono- or diester dicarboxylate in the vessel for a duration of from about 0.05 minute to no more than about 21 days; and
diluting the retained and mixed hydrogen peroxide and mono- or diester dicarboxylate composition to form an antimicrobial composition comprising:

about 1 wt-% to about 5 wt-% mono- or diester dicarboxylate,

about 1 wt-% to about 4 wt-% hydrogen peroxide, and

about 95 wt-% to about 98 wt-% water; and

free of added strong acid,

wherein the composition exhibits antimicrobial activity of greater than 2 log₁₀ reduction against *Bacillus cereus*, *Baccillus subtilis*, or *Chaetomium funicola* upon contacting the microbe with the composition for at least 5 seconds at a temperature between about 0 °C and about 100 °C.

Claim 33. (Currently amended) A method of reducing population of microorganism on an object, comprising:

contacting the object with use composition of *in situ* composition;

the *in situ* composition comprising:

about 1 wt-% to about 5 wt-% mono- or diester dicarboxylate,

about 1 wt-% to about 4 wt-% hydrogen peroxide, and

about 95 wt-% to about 98 wt-% water; and

free of added strong acid,

wherein the composition exhibits antimicrobial activity of greater than 2 log₁₀ reduction against *Bacillus cereus*, *Baccillus subtilis*, or *Chaetomium funicola* upon contacting the microbe with the composition for at least 5 seconds at a temperature between about 0 °C and about 100 °C.

Claim 39. (Currently amended) The method of claim 33, comprising contacting with said use composition effective to reduce by more than 2-log order the population of spores and/or cells of *Bacillus cereus* within 10 seconds at 60 °C.

Claim 40. (Currently amended) The method of claim 33, comprising contacting with said use composition effective to reduce by more than 2-log order the population of spores and/or cells of *Chaetomium funicola* within 10 seconds at 60 °C.

Claim 41. (Currently amended) The method of claim 33, comprising contacting with said use composition effective to reduce by more than 2-log order the population of spores and/or cells of *Chaetomium funicola* and *Bacillus cereus* within 10 seconds at 60 °C.

Claim 47. (Currently amended) A method for cold aseptic bottling of food, beverages, or pharmaceuticals, the method comprising:
contacting an *in situ* composition for sufficient period of time to reduce the microorganism population;

the *in situ* composition comprising:

about 1 wt-% to about 5 wt-% mono- or diester dicarboxylate,

about 1 wt-% to about 4 wt-% hydrogen peroxide, and

about 95 wt-% to about 98 wt-% water; and

free of added strong acid,

wherein the composition exhibits antimicrobial activity of greater than 2 log₁₀ reduction against *Bacillus cereus*, *Baccillus subtilis*, or *Chaetomium funicola* upon contacting the microbe with the composition for at least 5 seconds at a temperature between about 0 °C and about 100 °C;
filling the container with a beverage, food, or pharmaceutical;
sealing the filled container;

wherein contacting obtains a significantly reduced population of microorganisms resulting in a sanitized food, beverage, or pharmaceutical container.

The following is an examiner's statement of reasons for allowance: In addition to applicant's remarks of 10/11/2005, the following comments are in order in favor of patentability. The instant claims, as presently amended, require a composition or *in situ* composition that comprises about 1-5 wt% mono- or diester dicarboxylate, about 1-4 wt% hydrogen peroxide, and 95-99 wt% water, wherein the composition exhibits antimicrobial activity of greater than 2 log₁₀ reduction against *Bacillus cereus*, *Baccillus subtilis*, or *Chaetomium funicola* upon contacting the microbe with the composition for at least 5 seconds at a temperature between about 0 °C and about 100 °C.

While there are prior art teachings that seemingly come close to the present claims, none of them fairly disclose or suggest the instant claims, as presently amended. WO 95/34537 discloses adding strong acids to obtain a very low pH (page 8, lines 11-38), and in embodiments wherein a strong acid is not expressly used, hydrogen peroxide is added at much higher concentrations than in applicant's instant claims (page 9, lines 20-25). WO 98/28267 is useful to note in that a "complex mixture" is obtained when dicarboxylate ester + hydrogen peroxide + water are combined (page 3, lines 17-21). WO 98/28267 discloses 3-90 wt% diester of dicarboxylate + 2-30 wt% hydrogen peroxide + 5-90 wt% water (page 3, lines 7-16). WO 98/28267 discloses an

acid catalyst having a pK_a of about 3 or lower (page 6, lines 13-14), which qualifies as a strong acid. Therefore, there would have been insufficient motivation to arrive at a composition or *in situ* composition that is free of added strong acid, which contains 95-99 wt% water in combination with about 1-5 wt% mono- or diester dicarboxylate, about 1-4 wt% hydrogen peroxide, because a complex mixture is obtained thereby, which complex mixture is not disclosed or suggested by the prior art; and such complex mixture is claimed by applicant to possess a level of activity that is not suggested by the prior art for the mixture (see also applicant's data on specification pages 46-49). Based on the totality of the evidence, the evidence of nonobviousness outweighs the evidence of obviousness, and consequently, the claimed invention as a whole is deemed to be allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to JOHN PAK whose telephone number is (571)272-0620. The Examiner can normally be reached on Monday to Friday from 8 AM to 4:30 PM.

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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's SPE, Gary Kunz, can be reached on **(571)272-0887**.

The fax phone number for the organization where this application or proceeding is assigned is **(571)273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JOHN PAK
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